

Characterization of Microcrystalline Cellulose from Fast-Growing Species *Artocarpus elasticus*

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Abstract. Microcrystalline cellulose is an important derivative of cellulosic material obtained from wood and non-wood sources, and is used for pharmaceutical, food, cosmetics, and other industries. The aim of this study was to determine the effect of various hydrochloric acid concentrations on the characteristics of cellulose microcrystals isolated from terap wood (*Artocarpus elasticus*). The microcrystalline cellulose was hydrolyzed using hydrochloric acid, at concentrations of 1.5 N, 2.5 N, and 3.5 N for 15 minutes, and within a temperature range of 100-105° C. The samples were then analyzed for changes in color and functional groups with Fourier Transform Infrared spectroscopy (FTIR), while crystallinity index was evaluated through X-Ray Diffraction Analysis (X-RDF). The FTIR results showed similarity with commercial products, while X-Ray Diffraction confirms the highest crystallinity index in the 2.5 N of cellulose I (69.395 %) and cellulose II (82.73 %).

Keywords: cellulose, microcrystalline cellulose, fast-growing species, crystallinity index, *artocarpus elasticus*
